Abstract Submitted
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**Statistics of nucleation in small and large systems** VITALY SHNEIDMAN, NJIT — Statistics of single- and multiple nucleation events in systems of variable sizes is considered in the context of large scale simulations. The earlier obtained singular perturbation solution of the time-dependent Becker-Döring equation is used to predict the probability distribution of the waiting times to detect the first nucleus in a small system and to establish connection with the number of nuclei when the system is large. Examples include dynamic Monte Carlo simulations of condensation of a supersaturated lattice gas [1], where exact results for the nucleation rates obtained from low-temperature cluster expansions [2] provide a rigorous independent test. Stochastic (Langevin) simulations [3] of the evolution of a bubble in viscous and inertial fluid, discussed in the context of the cavitation problem [4] also are considered.

[1]V.A. Shneidman **J. Chem. Phys.** 141 (2014) 051101.
[2]V.A. Shneidman and G.M. Nita, **Phys. Rev. Lett.** 97 (2006) 065703.
[3]V.A. Shneidman **J. Chem. Phys.** 147 (2017) 061101.
[4]V.A. Shneidman **Phys. Rev. E** 94 (2016) 062101.

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